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EC.721 Wheelchair Design in Developing Countries
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Disacare: August 2005



The Three Revolutions of International Development

- Appropriate Technology
- Participatory Development
- Co-Creation

Appropriate Technology

The traditional definition:

- low in capital costs
- uses local materials as much as possible
- creates jobs
- small scale
- can be understood, maintained and repaired locally
- uses decentralized, renewable energy sources
- does not involve patents, royalties etc.

The Sari Cloth Filter



Courtesy of National Science Foundation.

The Pot-in-Pot

**Photos removed due to copyright restrictions.
See pages on Mohammed Bah Abba at the Rolex Awards for Enterprise,
<http://rolexawards.com/en/the-laureates/mohammedbahabba-home.jsp>**

Whirlwind Wheelchairs



Grameen Phone

Photos removed due to copyright restrictions.

Participatory Development

- Working with communities to identify problems



Stakeholder Analysis

- Identify stakeholder's interests in, importance to and influence over the operation of a project
- Identify local institutions and processes on which to build
- Provide a foundation and strategy for participation

What is a stakeholder?

- Individuals, groups or institutions
- Affected by the proposed intervention
- Can influence the outcome of the intervention.
- Stakeholders include
 - Beneficiaries
 - Competitors
 - Funders

Stakeholder Analysis: Step 1

- Identify Key Stakeholders
 - Who are the potential beneficiaries?
 - Who might be adversely impacted?
 - Have vulnerable groups been identified?
 - Have supporters and opponents been identified?
 - What are the relationships among the stakeholders?

Stakeholder Analysis: Step 1

Stakeholders	Interests	Effect	Importance	Influence

Stakeholder Analysis: Step 2

- Assess Stakeholder Interests and Impact on Project
 - What are the stakeholder's expectations of the project
 - What benefits are there likely to be for the stakeholder?
 - What resources might the stakeholder be able and willing to mobilize?
 - What stakeholder interests conflict with project goals?

Stakeholder Analysis: Step 2

Influence	Importance					
	U	1	2	3	4	5
U						
1						
2						
3						
4						
5						

Stakeholder Analysis: Step 3

- Assess Stakeholder Influence and Importance
 - Power and status (political, social and economic)
 - Degree of organization
 - Control of strategic resources
 - Informal influence
 - Power relations with other stakeholders

Stakeholder Analysis: Step 3

Stage	Type of Participation			
	1	2	3	4
1				
2				
3				
4				
5				

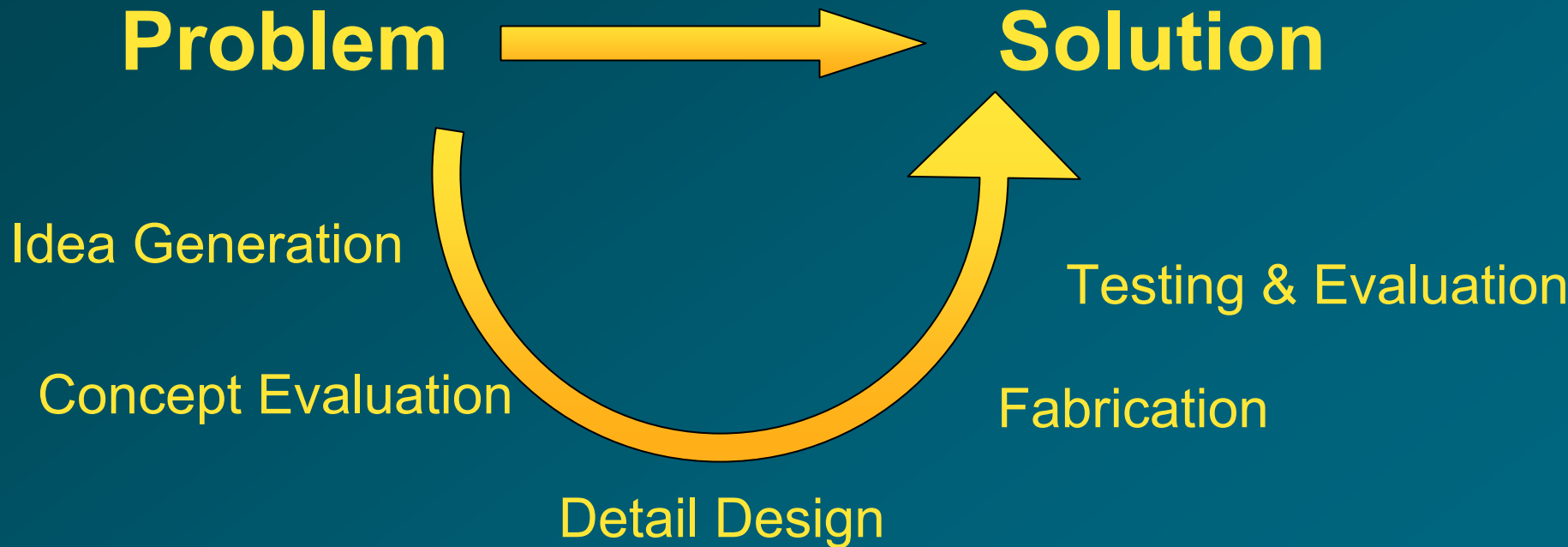
Stakeholder Analysis: Step 4

- Outline a Stakeholder Participation Strategy
 - Plan stakeholder involvement according to:
 - Interests, importance and influence of stakeholder group
 - Particular efforts needed to involve important stakeholders who lack influence
 - Appropriate forms of participation throughout project cycle.

Co-creation



The Design Process



Consultation vs Co-Creation

Community Involvement

Problem



Solution

Community Involvement

Idea Generation



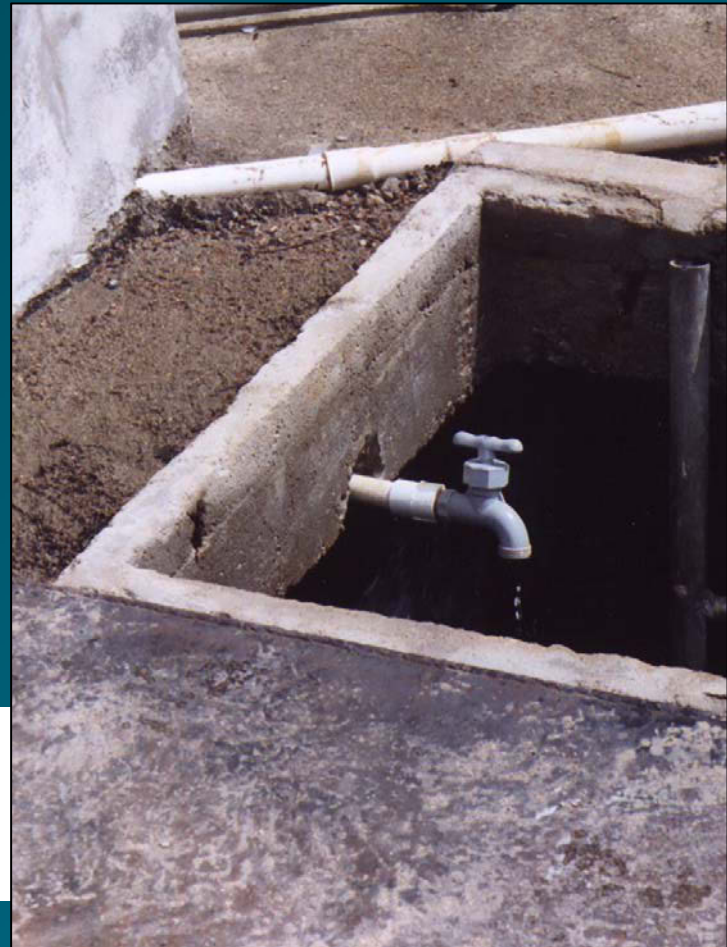
Testing & Evaluation

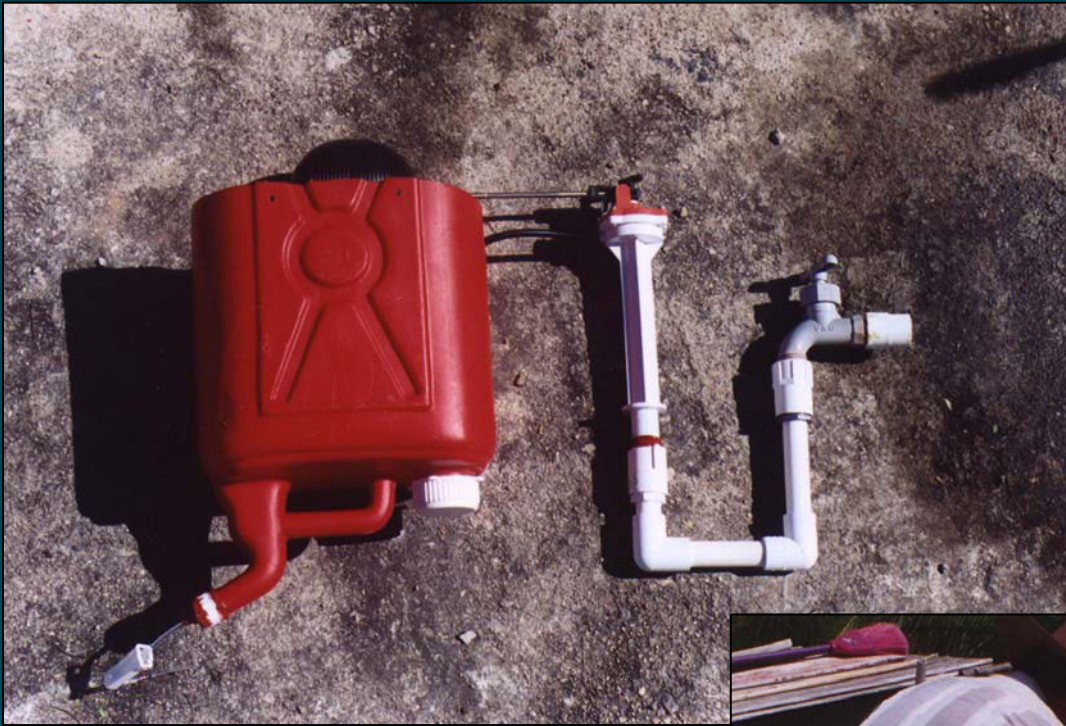
Concept Evaluation

Fabrication

Detail Design

Chlorination System in Honduras







A Guiding Principle for AT

- Give a man a fish, and he eats for a day
- Teach a man to fish, and he eats for a life time...
unless there's no river nearby!!

A Guiding Principle for Co-Creation

- Give a man a fish, and he eats for a day
- Teach a man to fish, and he eats for a life time...
until the fishing pole breaks!!

A Guiding Principle for Participatory Development

maybe you should ask if he likes fish!!

Guiding Principles for D-Lab

- Identify functional requirements
- Encourage participatory development
- Value indigenous knowledge
- Promote local innovation
- Strive for sustainability